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TITLE: NUCLEAR FUEL PELLETT
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INVENTOR-INFORMATION:

NAME	COUNTRY
UNE, KATSUMI	

ASSIGNEE-INFORMATION:

NAME	COUNTRY
NIPPON NUCLEAR FUEL DEV CO LTD	N/A

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INT-CL (IPC): G21C003/62 , G21C003/28

ABSTRACT:

PURPOSE: To prevent the generation of a stress corrosion crack of a fuel coating tube, and to prevent the emission of radioactive iodine into an atmosphere by uniformly dispersing a material that can generate a stable compound by preferentially reacted with the iodine of a fission product, into a pellet.

CONSTITUTION: 0.5wt.% of Ag20wt.%-Pd80wt.% alloy fine powder is added to UO2 powder, for

example, to which a lubricant of 1wt.% is further added, and they are mechanically mixed together in a ball mill for about two hours, and the mixed powder is pressure-powder molded so as to obtain a green pellet. After degreased, the pellet is sintered for 2 hours in an oxidizing gas atmosphere of CO₂/N₂ at 1400°C. In order to adjust an oxygen to uranium atomic ratio (O/U ratio) of the sintered pellet to 2.00 which is characteristically suitable for a nuclear fuel pellet, the pellet is annealed for one hour in a reducing mixed gas of H₂/N₂ at 1400°C, so as to obtain an annealed pellet. When the pellet is burned in a reactor, iodine produced by nuclear reaction is preferentially reacted with the fine powder of Ag20wt.%-Pd80wt.% alloy, and a metal iodine compound is thus formed and is stabilized.

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